In the Specification:

The paragraph starting at line 1 on page 13 is amended as follows:

Turning next to figures 10 and 11, it can be seen that the optical coherence reflectometry system of the present form of the invention (figure 11) is similar in construction and operation to the prior art optical coherence reflectometry system shown in figure 10 which is used for scanning an article. Referring particularly to figure 10, the prior art optical coherence reflectometry system there shown can be seen to comprise a low coherence light source ~~40~~ 41 that is input into a fiber optic coupler ~~42~~ 43 where the light is split and directed into a sample arm 44 and into a reference arm 46, the latter of which provides a variable optical delay. An optical fiber 48 is connected to the sample arm 44 and extends into a device 50, which scans the object 52. Light input into reference arm 46 is reflected back by a reference mirror 54. As shown in figure 10, piezoelectric modulator 56 maybe included in reference arm 46. The reflected reference beam from reference arm 46 and a reflected sample beam from sample arm 44 pass back through coupler ~~42~~ 43 to detector electronics 58 which processes the signals by techniques well known in the art to produce a backscatter profile (or "image") that is visually displayed on a suitable display 60. The prior art system shown in figure 10 is described in greater detail in U.S. Patent No. 6,175,669 issued to Colsten et al. which discloses another type of optical fiber guidewire.

In the Specification:

The paragraph starting at line 19 on page 13 is amended as follows:

Turning to figure 11, the optical coherence reflectometry system of the apparatus of the present invention comprises a low coherence light source 62 that is input into a conventional fiber optic coupler 64, where the light is split and directed into a sample arm 66 and a reference arm 68. The previously identified optical fiber 38 is connected to sample arm 66 and extends into second passageway 32 of the catheter 16 in the manner shown in figure 1. The light in the reference arm 68 is reflected by reflecting means shown here as a mirror 70 at a determinable variable path length when the catheter system is in an initial position within the artery. ~~Right~~ Light in the sample arm 66 will be reflected or scattered by the material present in the occlusion within which the distal end of the catheter resides. The reflections and backscattered light are combined at a coupler 64 in a manner well understood by those skilled in the art. If the path lengths of the two arms are within the coherence length of the light, the light will re-correlate. A detector 72, which is operably, interconnected with the coupler measures the interference intensity. Detector 72 is also of a character well known in the art. Since the reference path length is known and adjustable, the intensity profile of scattered light from a sample can be determined as a function of the reference arm path

length. The scattered light is analyzed by electronic means, which here comprises the electronics 74 and a conventional computer system 76. The cooperative interaction of the electronics and the computer produces a signal tracing that is displayed and periodically updated on a suitable display 78. In a manner well understood by those skilled in the art, the signal tracing is monitored by the computer through a series of algorithms to determine if the arterial wall is within the field of view. If the arterial wall is detected, a visual indication will appear on the display with the catheter assembly in its initial position within the artery if visual indication is not shown on the display, the guidewire can be further advanced a small distance into the inclusion. This done, the catheter is inserted over the guidewire to a position proximate the distal end of the guidewire and the monitor is viewed to verify cautionary visual indication is still not shown on the display. If this is the case, the guidewire can be further inserted a small distance into the occlusion and the catheter then inserted over the guide wire a further distance This procedure can be repeated until a visual indication appears on the display at which point the surgeon must take steps to reroute the steerable guidewire in the direction away from the arterial wall. Unlike the prior art systems which use the optical fiber and its sheath as a guide wire, the apparatus of the present invention, which uniquely embodies a conventional steerable metal

guidewire, such as guidewire 38, enables the surgeon to safely and expeditiously navigate through the occlusion with a minimum of a lost time and motion.

In the Specification:

The paragraph starting at line 10 on page 16 is amended as follows:

As indicated in figures 5 and 6, a conventional guide wire 30 is slideably movable within first passageway 94 between a first and second positions. Catheter 86 is also provided with a second passageway 102 which is radially spaced apart from first passageway 94. Second passageway 102 also has a proximal end 104 and a distal end 105. An optical fiber 38, which is carried within second passageway 102 in the manner shown in figures 5 and 6, has a first end ~~104~~ 107 and a second end 106, the second end being located proximate the distal end of second passageway 102. Also comprising a part of the intervascular catheter system of this latest form of the invention are instrument means of the character previously described that are operably associated with optical fiber 38 for providing, in the manner previously described, guidance data to the user of the system to permit to the safe navigation of the catheter through the occlusion. The instrument means, along with the optical fiber 38, forms a part of the optical coherence reflectometry system of the invention the character of which is illustrated in figure 11 of the drawings. The method of the invention using the alternate embodiment of the invention shown in figures 4 through 6 comprises the steps of first advancing the guidewire 30 through a vessel to a location proximate

the occlusion. This done, the catheter 86 is interconnected with the guidewire by inserting the guidewire into the distal end of passageway 94. Following insertion of the guidewire into passageway 94, the catheter is controllably advanced over the guidewire to a location wherein the distal end of the catheter is also proximate the occlusion. The guidewire and the catheter are then incrementally inserted into the occlusion in the manner described in connection with the embodiment of the invention shown in figures 1 through 3 with the surgeon periodically checking the display of the instrument means 39 to make certain that the catheter will not impinge on the artery wall.